WHAT IS CLAIMED IS:

1. An illumination optical system for guiding light from a light source unit to an image display light valve element, wherein at least one curved mirror is disposed in an optical path of said illumination optical system.

2. An illumination optical system according to claim 1, wherein said curved mirror forms a part of a curved surface having rotational symmetry about a predetermined axis.

3. An illumination optical system according to claim 1, wherein said curved mirror is a parabolic mirror.

4. An illumination optical system according to claim 3, wherein said parabolic mirror has a form, in a cross section including an optical path of the light from said light source unit to said image display light valve element, satisfying the following conditional expression (1) or (2):

$$f = \left\{-L \pm L\left[1+(\tan\theta)^2\right]^{1/2}\right\}/2\tan\theta \qquad (1)$$

$$f = L/2 \qquad (2)$$

where

$\theta \neq 90+180n$ (n being an integer) degrees in conditional expression (1);

$\theta = 90+180n$ (n being an integer) degrees in conditional expression (2);

f is the focal length of the parabolic mirror (where f > 0);

L is the distance between the optical axis of luminous flux before reflection and z axis of the parabolic mirror; and

θ is the optical axis bending angle caused by reflection of the parabolic mirror.

5. An illumination optical system according to claim 1, wherein said curved surface is a hyperbolic mirror.

6. An illumination optical system according to claim 5, wherein said hyperbolic mirror has a form, in a cross section including an optical path of the light from said light source unit to said image display light valve element, satisfying the following conditional expression (3):

$$z = C\rho^2/[1+(1-KC^2\rho^2)^{1/2}] \qquad (3)$$

where

z is the distance between the reflection point of the optical axis of luminous flux before reflection in the hyperbolic mirror and the tangent plane at the apex of the hyperbolic mirror;

ρ is the distance between the reflection point of the optical axis of luminous flux before reflection and z axis of the hyperbolic mirror;

C is a value defined as $C = a/b^2$ by a (where a > 0) and b satisfying the following conditional expressions (3-1) and (3-2); and

K is a value defined as $K = -a/b^2$ by a (where a > 0) and b satisfying the following conditional expressions (3-1) and (3-2);

$$8za^3 + 4(z^2+\rho^2)a^2 - 2zL^2a - z^2L^2 = 0 \qquad (3\text{-}1)$$

$$2(a^2+b^2)^{1/2} = L \qquad (3\text{-}2)$$

where

L is the focus-to-focus distance of the hyperbolic mirror defined by the following conditional expression (3-3):

$$L = \{[(Q-M)\sin\theta]^2 + [(P-M)-(Q-M)\cos\theta]^2\}^{1/2} \qquad (3\text{-}3)$$

where

P is the focal length of the optical system upstream the hyperbolic mirror;

Q is the composite focal length of the optical system upstream the hyperbolic mirror and the hyperbolic mirror;

M is the distance from the optical system upstream the hyperbolic mirror to the hyperbolic mirror; and

θ is the optical axis bending angle caused by reflection of the hyperbolic mirror.

7. An illumination optical system according to claim 1, wherein said curved mirror is a spherical mirror.

8. A projection type image display apparatus comprising the illumination optical system according to claim 1.